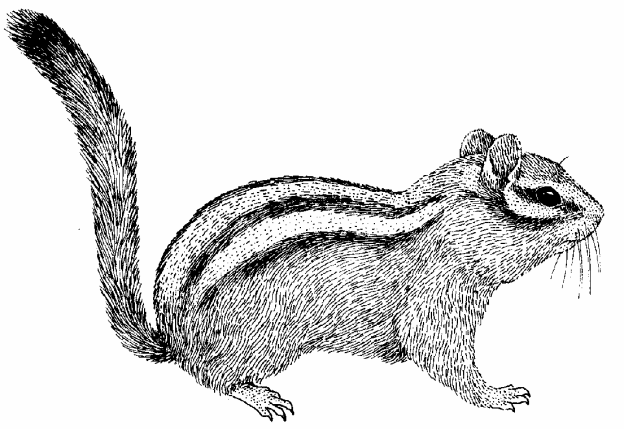
Species Notes for
Yellow-pine Chipmunk (*Neotamias amoenus):*

California Wildlife Habitat Relationships (CWHR) System
Level II Model Prototype



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PREFACE

This document is part of the California Wildlife Habitat Relationships (CWHR) System, operated and maintained by the California Department of Fish and Game (CDFG) in cooperation with the California Interagency Wildlife Task Group (CIWTG). The information will be useful for environmental assessments and wildlife habitat management. For more information on the CWHR System and all of its components, please see http://www.dfg.ca.gov/biogeodata/cwhr/.

Notes such as these were prepared for 32 species by the US Forest Service Pacific Southwest Research Station as part of a 2000/2001 contract with CDFG. Each is part of a prototypical "Level II" model for a species. As compared with the "Level I" or matrix models initially available in the CWHR System, "Level II" models incorporate spatial issues such as size of a habitat patch and distance between suitable habitat patches.

The notes are divided into three major sections. First, "Distribution, Seasonality and Habitats" represents information in the existing Geographic Information System (GIS) range data and in the Level I matrix model for a species. There is a vector-based GIS layer of geographic range and seasonality for each species in CWHR as well as a matrix containing all suitability ratings – High (H), Medium (M), Low (L) or Unsuitable (-) – by habitat (e.g. BOW or Blue Oak Woodland), stage (e.g. 4P or small tree, open canopy) and life requisite (reproduction, cover, or feeding.). Tools such as "Bioview" within the CWHR software will return these suitability ratings for a species to a user-supplied data set containing habitats and either stages (e.g. 4P) or stage values (e.g. trees of 16.0 average diameter at breast height in a stand of 30% canopy closure).

Second, "Required Attributes of Suitable Habitat Patches" represents spatially-explicit requirements of a species. The information here builds upon what is known about habitat patch size and the most critical attributes of a habitat patch needed by an individual of the species. Applications such as "GRABS", which stands for "Grouping Resources Algorithm for Biological Data Sets", will "clump" pixels of a user-supplied raster-based GIS data set representing patches of a suitable habitat and stage for a species. It will calculate area, perimeter, and complexity within each patch and analyze its outside edge for juxtaposition with other habitats and stages of interest. Many of the attributes are what were once called "elements" in the CWHR model.

Third, "Spatial Habitat Requirements for Persistence of Population" represents estimates of the amount of habitat needed to maintain a population of a species. This may be considered the starting point for a "Level III" CWHR model, which would take into account spatial issues as well as a number of population parameters not yet incorporated into CWHR. Such information is included for most, but not all, Level II-modeled species.

M055 Yellow-pine Chipmunk *Neotamias amoenus*

Distribution, Seasonality and Habitats

Model Parameter	*Threshold Value(s) for Species*
Biogeographic Range and Seasonality range of the species, by season, in the state	Species is generally active in spring, summer, and autumn in a range that includes the central Sierra Nevada north to the Cascade Ranges, Modoc Plateau, and Warner Mountains. It is not a true hibernator, active episodically in winter on the surface, more so under snow and logs.
Suitable Habitats habitats rated in the California Wildlife Habitat Relationships (CWHR) System as high (H), medium (M), or low (L) suitability for reproduction, cover, or feeding	Species finds suitability (H --->L) for reproduction, cover and/or feeding in some or all stages of: Aspen, Bitterbrush, Chamise-Redshank Chaparral, Douglas Fir, Eastside Pine, Jeffrey Pine, Juniper, Klamath Mixed Conifer, Lodgepole Pine, Low Sage, Mixed Chaparral, Montane Chaparral, Montane Hardwood, Montane Hardwood – Conifer, Montane Riparian, Pinyon-Juniper, Ponderosa Pine, Red Fir, Sagebrush, Sierran Mixed Conifer, Subalpine Conifer, and White Fir.
Water whether water is required, enhances, or is irrelevant for habitat suitability	Water does not seem to be needed by this relatively xeric adapted chipmunk, but presence of water does enhance habitat suitability.

Required Attributes of Suitable Habitat Patches

Model Parameter	*Threshold Value(s) for Species*
Patch Size L = low suitability. This is the minimum patch size for persistence of an individual. H = high suitability. Above this patch size, area alone does not increase habitat suitability for an individual.	3 acres (L) 20 acres (H)

Edges requirements for a transition between two life form types – tree/shrub, tree/grass, tree/water, tree/agricultural, shrub/grass, shrub/water, shrub/agricultural, grass/water, grass/agricultural, or water/agricultural	Tree/grass edges and shrub/grass edges are preferred but not essential for all 3 life requisites.
Structural Habitat Attributes requirements for live vegetation, dead or decadent vegetation, vegetation residues, physical features, or human-made features	Species needs a mixture of layers especially of shrubs and herbs for cover and feeding. A tree layer is greatly desired, but can species make do with shrubs and herbaceous layers. A number of other structural attributes are preferred but not essential, including pines, firs, hardwoods, trees with cavities, litter, slash, logs, stumps, snags, talus and rocks, and burrows.
Food vegetative or animal diet requirements	Species prefers fungi, seeds, fruits, nuts, berries, terrestrial insects and other invertebrates.

Spatial Habitat Requirements for Persistence of Population

Lowest suitability = 100 acres, if suitable patches cover at least 75% of area, are of a minimum size (see above), and are a maximum of 60 meters apart Highest suitability = greater than 300 acres, if suitable patches cover at least 75% of area, are of a minimum size (see above), and are less than 30 meters apart